

Serial No.: 09/899,410

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1. (Twice Amended) An optical network system comprising:

a data service hub;

at least one optical tap for dividing a downstream optical signal between one or more subscribers of the optical network system;

at least one subscriber optical interface connected to the optical tap for receiving the downstream optical signal from and sending upstream optical signals to the at least one optical tap;

AX a laser transceiver node disposed between the data service hub and the optical tap, for communicating optical signals to and from the data service hub and to and from the optical tap, and for apportioning bandwidth that is shared between groups of subscribers connected to a respective optical tap of the optical network system, and

one or more optical waveguides connected between respective optical taps and the laser transceiver node, for carrying the upstream optical signals and the downstream optical signals, whereby the number of the waveguides is minimized while optical bandwidth for subscribers is controllable by the laser transceiver node in response to subscriber demand use.

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21. (Twice Amended) An optical network system comprising:

a data service hub;

at least one optical tap for dividing a downstream optical signal between one or more subscribers of the optical network system;

at least one subscriber optical interface connected to the optical tap for receiving the downstream optical signal from and sending upstream optical signals to the at least one optical tap;

a laser transceiver node disposed between the data service hub and the at least one subscriber optical interface, for communicating optical signals to and from the data service hub and to and from the optical tap, and for apportioning bandwidth that is shared between groups of subscribers connected to a respective optical tap of the optical network system, at least one optical tap being disposed within the laser transceiver node, and

one or more optical waveguides connected between respective optical taps and the laser transceiver node, for carrying the upstream optical signals and the downstream optical signals, whereby the number of the waveguides is minimized while optical bandwidth for subscribers is controllable by the laser transceiver node in response to subscriber demand.

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24. (Once Amended) A method for communicating optical signals from a data service provider to at least one subscriber comprising the steps of:

propagating downstream optical signals at a single wavelength from the data service provider;

receiving the single wavelength downstream optical signals in a laser transceiver node from the data service provider;

dividing the downstream signals between preassigned multiplexers in the laser transceiver node;

apportioning bandwidth between subscribers in the laser transceiver node;

multiplexing the downstream signals at the preassigned multiplexers; and

propagating respective combined downstream optical signals at a single wavelength to at least one subscriber via at least one optical tap along at least one optical waveguide.

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36. (Once Amended) The method of claim 24, further comprising a step of converting downstream signals by modulating at least one of Fabry-Perot lasers, distributed feedback lasers, and vertical cavity surface emitting lasers (VCSELs) to generate downstream optical signals.

38. (Once Amended) The method of claim 24, wherein the step of dividing the downstream signals further comprises the substep of using a time division multiplex protocol to divide the downstream signals between preassigned multiplexers.